

REMARKS

United States Serial No. 10/524,466, was filed on November 14, 2005. In view of the remarks set forth herein, Applicants respectfully request reconsideration and allowance of claims 19-32.

Claims 1-18 have been canceled without prejudice or disclaimer, and subject to the right to file the same in a continuing application. New claims 19-32 are method claims fully finding support in claims 1-18. These have been re-written, not for the purpose of narrowing the subject matter of the new claims, but rather because the addition of the chemical formulas into the previously presented method claims from the composition claims, with the required underlining of added material, would have rendered some of the formulas illegible or confusing.

35 U.S.C. §103 Rejection

Claims 1-18 have been rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,567,236 ("Schapira"), alone or in view of U.S. Patent No. 5,369,198 ("Albrecht"), Caspar et al. 4,222,784, Burge et al. 4,507,154, Burge et al. 5,389,144, or Schimuzu et al. 6,767,164. Applicants respectfully traverse these rejections.

Schapira

The first Office Action of May 26, 2006 alleged that Schapira teaches a composition to improve the rheological properties of cement and increase duration of workability and dispersability by adding (1) a stabilizing agent (citric acid), (2) 2-phosphonobutane-1,2,4 tricarboxylic acid, and (3) a superplasticizer. The first Office Action alleged that the use of another known polymer that functions to improve the flowability and dispersability of cement would have been an obvious design choice for one of ordinary skill in the art because they are functionally equivalent.

The second Office Action of October 30, 2006 alleged that Schapira teaches that the composition can be used simultaneously with the superplasticizers of the prior art. The second Office Action further alleges that the Albrecht superplasticizer was prior art and that it would have been an obvious design choice to substitute one known superplasticizer for another known superplasticizer (Albrecht's) because they are functionally equivalent in cement mixtures.

The third Office Action of February 26, 2007 alleges that Schapira teaches the addition of citric acid as stabilizing agent, also 2-phosphonobutane-1,2,4 tricarboxylic acid, and superplasticizers of the prior art. The Office Action states that Albrecht teach a plasticizer or superplasticizer that is a prior art and a known and conventional superplasticizer already in use in the prior art. The Office Action alleges that it would be an obvious design choice to substitute one known superplasticizer for another known superplasticizer because they are functionally equivalent.

The third Office Action admits that there is no disagreement that Schapira does not teach the copolymer plasticizer, but states that it is improper to attack references individually.

It is respectfully submitted that one rejection to which Applicants are responding is the rejection over "Schapira et al. '236 alone". There is no combination "to attack". Rather, the Schapira reference must be distinguished on its own merits. The Office Action indicates agreement that Schapira does not teach the copolymer plasticizer. Schapira alone cannot render the claims of the present application obvious.

Applicants further submit that the combination of Schapira with Albrecht is improper, for the reasons set forth in previous Responses, and for further reasons that will be addressed below.

Applicants traverse the rejection based on the combination of Schapira with Caspar et al., Burge et al. '154, Burge et al. '144, or Schimuzu et al. The combination of any or all of these new secondary references with Schapira fail to suggest the present method as claimed. While these secondary references disclose that concrete or mortar may be sprayed, none of

them, alone or in combination with the primary reference Schapira, teach or suggest the methods using the particular admixture as claimed in the present application.

The US Supreme Court, in *KSR International Co. v. Teleflex Inc.* 550 U.S. ____ (2007) (No. 04-1350, April 30, 2007), has reiterated that *Graham v John Deere* 383 U.S. 1 (1966) sets out the framework for applying the statutory language of 35 USC 103.

Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or non-obviousness, these inquiries may have relevancy. *Graham v John Deere*, at pages 17-18.

In *U.S. v Adams*, 383 U.S. 39 (1996) decided by the Supreme Court on the same day as *Graham v John Deere*, the Supreme Court stated that

Nor is the Government's contention that the electrodes of Adams were mere substitutions of pre-existing battery designs supported by the prior art. If the use of magnesium for zinc and cuprous chloride for silver chloride were merely equivalent substitutions, it would follow that the resulting device-Adams'-would have equivalent operating characteristics. But it does not. The court below found, and the Government apparently admits, that the Adams battery 'wholly unexpectedly' has shown 'certain valuable operating advantages over other batteries' while those from which it is claimed to have been copied were long ago discarded. *U.S. v Adams*, at pages 50-51.

The unexpected results in the operation of the invention was deemed a secondary consideration or an indicia of unobviousness.

We conclude the Adams battery was also nonobvious. As we have seen, the operating characteristics of the Adams battery have been shown to have been unexpected and to have far surpassed then-existing wet batteries. Despite the

fact that each of the elements of the Adams battery was well known in the prior art, to combine them as did Adams required that a person reasonably skilled in the prior art must ignore that (1) batteries which continued to operate on an open circuit and which heated in normal use were not practical; and (2) water-activated batteries were successful only when combined with electrolytes detrimental to the use of magnesium. *U.S. v Adams*, at pages 51-52.

The present application discloses a fluidizing admixture for use in *sprayable* cementitious compositions. Page 1, lines 3-4. The spraying of cementitious compositions such as concrete is regularly used in a number of applications, most notably tunneling. Page 1, lines 6-7. It is a requirement that such compositions be able to be easily conveyed (usually by pumping) to a spray nozzle. Page 1, lines 7-8. The method of using the admixture defined in the claims of the present application maintains 45 cm flow after 4 hours. In contrast, the slump desired in Schapira after only two hours, is approximately 15-18 cm. See Tables I, II, III, IV, V and VI). Page 9, Table at top.

Schapira discloses a composition to improve the rheological properties of cement-based products, namely grouts or slags, concretes and mortars. Column 1, lines 6-8. For these applications, it is important *to not excessively retard the setting of the products and not to affect the times required for dismantling the formwork*. (emphasis added) Column 2, lines 52-54. Schapira teaches that the synergetic effect of the ternary mixture makes it possible to confer a workability to the cement-based products sufficient to enable them to be pumped and/or put into place for at least two hours after their preparation, *without unfavorably influencing the releasing time*. (emphasis added) Column 2, line 64 – Column 3, line 6. “In particular, it is suitable for use in concrete plants; in that case, a delay *of at most 2 hours* may be desired to cover transportation by mixer truck to the site where the concrete is to be put into place; it is also suitable for pumping any cement-based product.” (emphasis added) Column 10, lines 54-61.

The claimed methods therefore provide unexpected results with respect to the efficacy of the flow characteristics imparted to the cementitious mix by the admixture as defined in

the claims. Regardless of whether individual components can be found in the relevant prior art (just as certain electrochemical battery components were known in the battery art in the case of *U.S. v Adams*), the unexpected results achieved are indicia of non-obviousness. The superplasticizer of Schapira, and the plasticizer of Albrecht, with respect to the present claims, are not functionally equivalent.

Further, the claimed methods using the defined admixtures exhibit unexpected results with respect to the extraordinary shelf life of the admixtures enhancing their ability to impart flow to the cementitious mix. As stated in the Specification at page 7, "the admixture has the additional major practical advantage of having a very long shelf life. This means that it can be prepared well in advance of use and stored for several months without any segregation of ingredients. Moreover, it maintains this stability in the adverse conditions often found in tunnels, such as high temperatures, on exposure to which many conventional admixtures are no longer stable."

This is demonstrated in the Specification at page 10, as follows.

Samples of the admixture are tested in a mortar by flow table and for setting time. The mortar is a 1:3 blend of CEM I 42.5 Portland cement and CEM standard sand (according to DIN EN 196-1), and the admixture samples are added at a rate of 1% solids by weight on cement. Samples are also stored at 20°C, 30°C and 40°C for six months. At the end of the six months, the admixtures remained visually unaffected. The actual test results are shown in the following table:

Sample No.		1	2	3	4
Storage time	[days]	1	180	180	180
Storage temperature	[°C]	20	20	30	40
W/C		0.42	0.42	0.42	0.42
Flow table	[cm]	16.5	18.0	17.0	18.0
Initial setting	[min.]	500	450	400	330
Final setting	[min.]	920	850	740	740

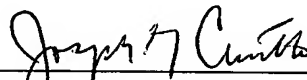
These additional unexpected results indicate that the subject matter as presently claimed is not obvious in view of the cited art.

Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. §103 of claims 19-32 over Shapira in view of Albrecht, Caspar et al., Burge et al. '154, Burge et al. '144, or Schimuzu et al. be withdrawn.

In view of the amendments and remarks contained above, Applicants respectfully request reconsideration of the application, withdrawal of the 35 USC §103 rejection, and request that a Formal Notice of Allowance be issued for claims 19-32.

Should the Examiner have any questions about the above remarks, the undersigned attorney would welcome a telephone call.

Respectfully submitted,



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7-26-2007
Date